

## **REMARKS**

### **Claim Rejections - 35 USC § 103**

Claims 1-2, 4-6, and 12-13, 24-26 and 28-30 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kley U.S. Patent No. 6,396,054 and Wickramasinghe et al. U.S. Patent No. 5,624,845. Claims 8-11 were rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kley U.S. Patent No. 6,396,054 and Wickramasinghe et al. U.S. Patent No. 5,624,845, as applied to claims 1 and 8 above, and further in view of Grand et al. "Epitaxial growth of copper phthalocyanine monolayers on Ag(111)", Surface Science, vol. 366, no. 3, 1 November 1996. Applicants respectfully traverse the rejection.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). See also MPEP 2143.03. Independent claims 1 and 24 recite, *inter alia*, "wherein the molecular structures are biomolecules and the molecular combing comprises attachment of the biomolecules to the surface and alignment of the attached biomolecules by drawing the biomolecule through a moving meniscus." This feature is neither taught nor suggested by Kley, Wickramasinghe, or Grand.

In making the rejection, the Examiner states:

Wickramasinghe teaches a method of aligning biomolecule (column 10, lines 55-57) in a parallel manner (a concept of inputting biomolecule in a fluid channels where electrodes are arranged in parallel to draw/control movement of biomolecule in parallel) (column 17, lines 25-35 and column 18, lines 57-65) on a surface by molecular combing (column 17, lines 38-40) and molecular combing comprises attachment of the biomolecule (column 10, lines 40-48) to the surface (column 17, lines 38-43) and alignment of the attached biomolecule (column 10, line 55) by drawing the biomolecule through a moving meniscus. (Column 15, lines 45-52). (Office action, page 3, lines 11-17).

Wickramasinghe, however, does not teach aligning a biomolecule by drawing the biomolecule through a moving meniscus. Indeed, the portion of Wickramasinghe discussing alignment of biomolecules teaches:

At first, **a strong magnetic field gradient B and a weak electric field E can induce an alignment of the molecules** at one electrode 170. Then, a high voltage, typically generated by a 100 kV power supply 176 may be applied to the electrode 170 so that the field drags the flowing biomolecules 174 towards the other uncovered electrode 170. (Wickramasinghe, col. 17, lines 60-65)(Emphasis added).

Since biomolecules 174, and in particular DNA stretched by an electric field E, can shrink back to random-coil conformation, **a constant magnetic excitation B preferably is kept**, thereby retaining the stretched molecular conformation when the electric field E is turned up ( $E > 10^6$  V/M). (Wickramasinghe, col. 17, line 66-col. 18, line 2)(Emphasis added).

That is, Wickramasinghe et al. explicitly teach aligning the biomolecule by applying a strong magnetic field and a weak electric field. Wickramasinghe et al. do *not* teach “alignment of the attached biomolecules by drawing the biomolecule through a moving meniscus” as recited in independent claims 1 and 34. Indeed, Wickramasinghe et al. (and the other applied references) fail to provide any reason for one of ordinary skill in the art to modify Kley to align the attached biomolecules by **drawing the biomolecule through a moving meniscus**. Thus, even under the more relaxed KSR standard, the combination of Kley and Wickramasinghe et al. would not have rendered obvious independent claims 1 and 24 to one of ordinary skill in the art at the time of the invention. Applicants, therefore respectfully request withdrawal of the rejections.

In view of the above amendment, applicant believes the pending application is in condition for allowance. The Director is authorized to charge any fees necessary and/or credit any overpayments to Deposit Account No. 03-3975, referencing Docket No. 043395-0378082.

Respectfully submitted,

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